

Application No.: 10/579,576
Amdt. dated 22 September 2010
Reply to Office Action of 7 July 2010

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-11. (canceled)

12. (currently amended) A method for producing nitrogen fertilizer from organic waste products in the liquid phase and for hygienizing the wastes and reducing the emissions by thermal treatment using mineral or organic additions, wherein the waste product is heated in a first vessel without acids or alkali to temperatures between 40 and 90° C, as the pressure is first evacuated to 10 to 30 kPa, and then the pressure is increased to 40 to 80 kPa, so as to removeand carbon dioxide and almost all ammonia escape without being accompanied by appreciable amounts of water, the escaping gas containing carbon dioxide and ammonia is cooled down and then introduced into a second vessel to an aqueous absorption agent or brought into contact therewith, the nitrogen fertilizer formed thereby is discharged and the excess gas not having been absorbed and containing carbon dioxide is conducted back into the process, circulating said gas between the first and the second vessel, with maintenance of the temperature in the discharge container at a predetermined value, such that the underpressure between 10 and 80 kPa generated at the beginning of the process by a vacuum pump is autogenously maintained by the progress of the process, and the ammonium nitrogen as nitrogen fertilizer may be nearly fully removed.

13. (previously presented) The method according to claim 12, wherein the excess gas is not absorbed and, containing carbon dioxide, is conducted back into the cycle by either

conducting it through the waste product to be treated, or
conducting it immediately above the waste product to be treated, or
conducting it through the gas cooling system above the waste product to be treated, or dividing it and conducting a partial flow through the waste product and another partial flow above the waste product.

14. (previously presented) The method according to claim 12, wherein a temperature is adjusted in the front portion of the gas cooling system, which is at least 3 K and at most 15 K below the temperature in the first vessel, whereas in the second vessel another cooling-down process to 40°C takes place.

15. (previously presented) The method according to claim 12, wherein carbon dioxide in a mixture with other gases is added to the excess gas.

16. (previously presented) The method according to claim 12, wherein fermented manure is used as waste product, and that it is heated up to 70 to 85° C. at a reduced pressure.

17. (currently amended) The method according to claim 16, including the step of~~wherein~~ filtering the fermented manure before a thermal vacuum treatment, and spraying the hygienized discharge manure formed after the thermal vacuum treatment ~~is onto~~ meadows and fields as a virtually odorless sludge liquor stripped from nitrogen compounds, and composting the solid substances separated after filtration.

18. (previously presented) The method according to claim 12, characterized by using as said aqueous absorption agent, a sulfate solution and/or a gypsum suspension having a content of solid matter of 10% by mass to 50% by mass, wherein the latter is stirred in a collection container, and the product containing deposited lime and ammonium sulfate is taken out from the container.

19. (previously presented) The device for producing nitrogen fertilizer according to claim 12, composed of the following essential parts:

a stripping container for heating at underpressure,

a collection container for a reaction in a heterogeneous phase,

a heat storage for heat exchange,

a vacuum pump,

a heating water pump,

a circulation fan,

a stirrer,

in order to thus secure the circulation movement, and pipelines, shutoff devices, and measurement and control devices.

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20. (previously presented) A device for producing nitrogen fertilizer according to claim 19, wherein

the device includes an additional gas cooling system with an upwards directed separating column and a downwards directed cooler, and

additional pipelines and ball valves,

in order that the circulating gas can be fed fully or partially into the stripping container above the waste product, or

through the cooling system into the collection container, or partially into the stripping container into the waste product, wherein the residual flows in case of a division of the circulating gas are optionally fed into the two remaining designated entry positions.